Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A method for treating a disease characterized by low blood flow by inducing angiogenesis, the method comprising steps of:

attaching a compression apparatus to a body part of a patient suffering from a disease characterized by low blood flow; and

applying graded sequential compression to the body part of the patient using the compression apparatus, wherein the compression delivers a maximum pressure ranging from 75 mmHg to 300 mm Hg, and wherein the compression causes a change in the shear stress experienced by the endothelial cells of the patient.

2. (Currently amended) A method for promoting wound healing, the method comprising steps of:

attaching a compression apparatus to a body part of a patient with a wound; and

applying graded sequential compression to the body part of the patient using the compression apparatus, wherein the compression delivers a maximum pressure ranging from 75 mm Hg to 300 mm Hg, and wherein the compression causes a change in the shear stress experienced by the endothelial cells of the patient.

3. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a reverse in direction of shear stress to which the vascular endothelial cells of the patient are subjected.

4. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression causes a 100% increase in shear stress seen by the vascular endothelial cells of the

patient.

5. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression causes a 50% increase in shear stress seen by the vascular endothelial cells of the patient.

6. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression causes a 200% increase in shear stress seen by the vascular endothelial cells of the patient.

7. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression causes a 400% increase in shear stress seen by the vascular endothelial cells of the patient.

8. (Original) The method of claim 1 or 2 wherein the graded sequential compression is sufficient to cause a temporary collapse of the large arteries of the body part to which the compression means is attached.

9. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression delivers a maximum pressure ranging from 75 mm Hg to 250 mm Hg.

10. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression delivers a maximum pressure ranging from 75 mm Hg to 200 mm Hg.

11. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression delivers a maximum pressure ranging from 75 mm Hg to 150 mm Hg.

12. (Original) The method of claim 1 or 2 wherein the graded sequential compression results in retrograde flow in the arterial vasculature of the patient.

13. (Original) The method of claim 1 or 2 wherein the graded sequential compression is timed with the cardiac cycle of the patient.

14. (Original) The method of claim 1 or 2 wherein the graded sequential compression induces secretion of angiogenesis factors.

15. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression induces secretion of at least one molecule selected from the group consisting of platelet-derived growth factor, fibroblast-derived growth factor, epidermal growth factor, vascular endothelial-derived growth factor, prostaglandins, nitric oxide (NO), leukotrienes, and cytokines.

16. (Original) The method of claim 1 or 2 wherein the graded sequential compression induces secretion of growth factors.

17. (Original) The method of claim 1 or 2 wherein the graded sequential compression induces secretion of angiogenesis factors by vascular endothelial cells.

18. (Original) The method of claim 1 or 2 wherein the graded sequential compression induces secretion of angiogenesis factors by cells selected from the groups consisting of muscle cells, fibroblasts, epithelial cells, and smooth muscle cells.

19. (Original) The method of claim 1 or 2 wherein the compression apparatus is attached to at least one extremity of the patient.

20. (Original) The method of claim 1 or 2 wherein the compression apparatus is attached to at least one leg of the patient.

21. (Original) The method of claim 1 or 2 wherein the compression apparatus is attached to at least one arm of the patient.

22. (Original) The method of claim 1 or 2 wherein the compression apparatus is an inflatable bladder.

23. (Previously presented) The method of claim 22 wherein the inflatable bladder contains a gas.

24. (Original) The method of claim 22 wherein the inflatable bladder contains a liquid.

25. (Original) The method of claim 1 or 2 wherein the compression apparatus is a series of cuffs containing at least one inflatable bladder.

26. (Original) The method of claim 1 or 2 wherein the compression apparatus is a flexible, stretchable band capable of being under variable tension.

27. (Original) The method of claim 1 or 2 wherein the patient has peripheral vascular disease.

28. (Original) The method of claim 1 or 2 wherein the patient has cardiovascular disease.

29. (Original) The method of claim 1 or 2 wherein the patient has coronary artery disease.

30. (Original) The method of claim 1 or 2 wherein the patient has diabetes.

31. (Canceled)

32. (Currently amended) A method for treating a disease characterized by low blood flow by inducing angiogenesis, the method comprising steps of:

attaching an apparatus for delivering negative and positive pressure to a body part of a patient suffering from a disease characterized by low blood flow;

applying negative pressure to the body part of the patient using the apparatus; and

applying graded sequential compression to the body part of the patient using the apparatus, whereby the graded sequential compression or the negative pressure causes a change in the shear stress experienced by the endothelial cells of the patient.

33. (Canceled)

34. (Currently amended) A method for promoting wound healing, the method comprising steps of:

attaching an apparatus for delivering negative and positive pressure to a body part of a patient with a wound;

applying negative pressure to the body part of the patient using the apparatus; and

applying graded sequential compression to the body part of the patient using the apparatus, whereby the graded sequential compression or the negative pressure causes a change in the shear stress experienced by the endothelial cells of the patient.

35. (Currently amended) An apparatus for compressing a part of a patient's body in order to induce angiogenesis or wound healing, the apparatus comprising:

a source of fluid;

a compression structure for receiving the fluid;

a control means for controlling the fluid to achieve inflation and deflation of the compression structure, wherein the control means institutes inflation of the compression structure so that graded sequential compression of the body part by the compression structure results with a maximum pressure ranging from 75 mm Hg to 300 mm Hg, whereby the graded sequential compression causes a change in the shear stress experienced by the endothelial cells of the

patient.

36. (Original) The apparatus of claim 35 wherein the apparatus further comprises a blood oxygen detector.

37. (Original) The apparatus of claim 35 wherein the apparatus further comprises a pulse oximeter.

38. (Original) The apparatus of claim 35 wherein the apparatus further comprises an EKG detector.

39. (Original) The apparatus of claim 35 wherein the apparatus further comprises a blood pressure detector.

40. (Previously presented) The apparatus of claim 35 wherein the apparatus further comprises a means for heating or cooling the fluid.

41. (Previously presented) The apparatus of claim 35 wherein the apparatus further comprises a means for accelerating withdrawal of fluid from the compression means.

42. (Original) The apparatus of claim 41 wherein the means for accelerating the withdrawal of fluid from the compression means comprises a vacuum pump.

43. (Original) The apparatus of claim 41 wherein the means for accelerating the withdrawal of fluid from the compression means comprises a negative pressure reservoir.

44. (Original) The apparatus of claim 35 wherein the compression structure comprises a means for mounting compression means on the body part.

45. (Previously presented) The apparatus of claim 44 wherein the means for mounting is hook and loop fasteners (Velcro®).

46. (Original) The apparatus of claim 44 wherein the means for mounting is selected from the group consisting of buttons, snaps, elastic bands, and zippers.

47. (Original) The apparatus of claim 35 wherein the fluid is a gas.

48. (Original) The apparatus of claim 35 wherein the fluid is a liquid.

49. (Original) The apparatus of claim 35 wherein the source of compressed fluid is a gas compressor.

50. (Original) The apparatus of claim 35 wherein the source of compressed fluid is a tank of pressurized gas.

51. (Original) The apparatus of claim 35 wherein the compression structure is a balloon.

52. (Original) The apparatus of claim 35 wherein the compression structure is a bladder.

53. (Original) The apparatus of claim 35 wherein the control means comprises a computer.

54. (Currently amended) An apparatus for compressing a part of a patient's body in order to induce angiogenesis or wound healing, the apparatus comprising:

at least one flexible band;

a means for mounting said band on the body part;

a control means for controlling the tension in the band and thus the band's resulting pressure on the body part, whereby the graded sequential compression or the negative pressure causes a change in the shear stress experienced by the endothelial cells of the patient.

55. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a wave traveling at 1 m/s to 15 m/s.

56. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a wave traveling at 5 m/s to 10 m/s.

57. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results from increasing the pressure to the maximum pressure over a time period ranging from 0.01 sec to 1 sec.

58. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results from increasing the pressure to the maximum pressure over a time period ranging from 0.01 sec to 0.5 sec.

59. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a pressure difference ranging from 20 mm Hg to 100 mm Hg between distal and proximal compression regions of an extremity of the patient.

60. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a pressure difference ranging from 30 mm Hg to 70 mm Hg between distal and proximal compression regions of an extremity of the patient.

61. (Previously presented) The method of claim 1 or 2 wherein the graded sequential compression results in a pressure difference ranging from 40 mm Hg to 60 mm Hg between distal and proximal compression regions of an extremity of the patient.